



Magnetic Field Sensor FL 200

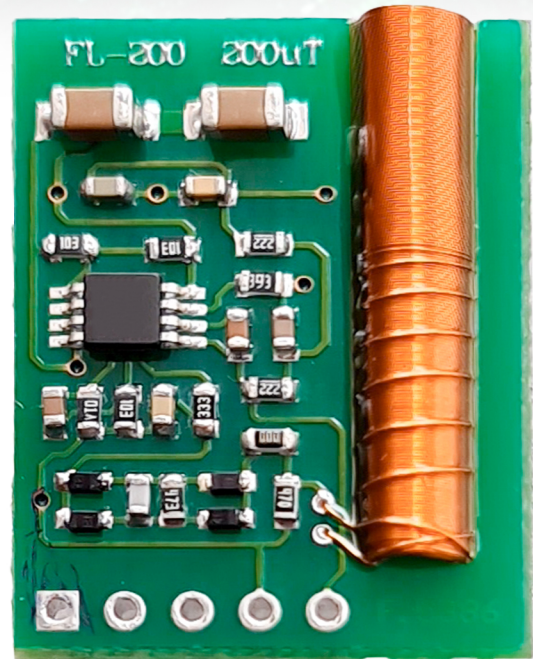
Miniature fluxgate sensor with high sensitivity
Measurement range $\pm 200 \mu\text{T}$, DC to 1 kHz

Features

- Output voltage proportional to magnetic field
- Low noise and high stability of output signal
- Low cost
- Complete miniature magnetometer
- Single 5 V power supply
- Only 2 mA current consumption
- Simple integration into μP systems
- Temperature range $-40 - +85 \text{ }^\circ\text{C}$, extended temp. range on request

Applications

- Measurement of the earth's magnetic field, navigation
- Detection of fields from power lines
- Current measurement
- Distance sensors
- Magnetic signatures
- Vehicle detection, traffic control
- Material and package inspection
- Residual field measurement (shielding effectiveness)



FL200 200 μT

Description The magnetic field sensor FL 200 is a miniature fluxgate magnetometer with high resolution for the measurement of weak magnetic fields up to $200 \mu\text{T}$. This sensor can be used in any application where the sensitivity and stability of conventional magnetic field sensors (Hall or MR sensors) is too low, e. g. for the measurement of the earth's magnetic field (for navigation) or if ferrous objects should be detected at larger distances. The FL 200 is a complete single axis fluxgate magnetometer which works without external drive circuits. The analog output voltage is proportional to the component of the magnetic field parallel to the detection coil. Due to its single 5 V supply voltage and low current consumption it is ideally suited for battery powered or μP controlled applications. The supply and signal lines are connected to solder pads which are positioned at nodes of a 0.1 inch grid. The excitation frequencies (typ. 19 kHz) of several sensors can be synchronized by connecting the SYNC pads to each other.

Specifications

Meas. Range	$\pm 200 \mu\text{T}$, other ranges on request
Accuracy at $20 \text{ }^\circ\text{C}$	$\pm 4\% \pm 0.6 \mu\text{T}$
Operating temperature	-40 to $+85 \text{ }^\circ\text{C}$
Zero drift	$< 4 \text{ nT/K}$
Output voltage OUT+ ref. to OUT-	$\pm 1 \text{ V}/100 \mu\text{T}$, max. $\pm 2.5 \text{ V}$
Bandwidth	0 to 1 kHz (-3 dB)
DC output impedance	$< 1 \Omega$
Reference output OUT-	2.5 V ref. to supply ground (0 V)
Max. load between OUT+ and OUT-	$> 1 \text{ k}\Omega, < 100 \text{ pF}$
Noise	$< 1 \text{ nT RMS}$ or 6 nT_{pp} (0.1 to 10 Hz), $\approx 150 \text{ pT/V Hz}$ @ 1 Hz
Supply voltage	5 V $\pm 5\%$
Supply current	$\approx 2 \text{ mA}$
Dimensions	25 mm \times 20 mm \times 5.5 mm
Length of detection coil	22 mm